No. 200800001

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Arkansas Agricultural Experiment Station, University of Arkansas

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'Osage'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this sixteenth day of July, in the year two thousand and eight.*

Attest:

Commissioner
Plant Variety Protection Office

Secretary of Agriculture

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER
Arkansas ~~Agric. Expt~~ Agricultural Experiment Station, University of Arkansas

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
R98-1821

3. VARIETY NAME
Osage

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
Agricultural, Food and Life Sciences Building, Room E-108, University of Arkansas, Fayetteville, AR 72701

5. TELEPHONE *(Include area code)*
479-575-2120

6. FAX *(Include area code)*
479-575-2410

FOR OFFICIAL USE ONLY

PVPO NUMBER
#200800001

FILING DATE
10/3/07

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
University of Arkansas

8. IF INCORPORATED, GIVE STATE OF INCORPORATION

9. DATE OF INCORPORATION

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*
Pengyin Chen
115 PTSC Building,
University of Arkansas,
Fayetteville, AR 72701, USA

FEES RECEIVED
FILING AND EXAMINATION FEES:
$ 10/3/07
DATE 4382.00
CERTIFICATION FEE:
$ 768.00
DATE 5/14/2008

11. TELEPHONE (Include area code)
479-575-7564

12. FAX (Include area code)
479-575-7465

13. E-MAIL
pchen@uark.edu

14. CROP KIND *(Common Name)*
soybean

16. FAMILY NAME *(Botanical)*
Leguminosae

15. GENUS AND SPECIES NAME OF CROP
Glycine max (L.) Merr.

17. IS THE VARIETY A FIRST GENERATION HYBRID?
☐ YES ☑ NO

18. DOES THE VARIETY CONTAIN ANY TRANSGENES? *(OPTIONAL)*
☐ YES ☑ NO
IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERICALIZATION. _____

19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED
(Follow instructions on reverse)
- a. ☑ Exhibit A. Origin and Breeding History of the Variety
- b. ☑ Exhibit B. Statement of Distinctness
- c. ☑ Exhibit C. Objective Description of Variety
- d. ☐ Exhibit D. Additional Description of the Variety *(Optional)*
- e. ☑ Exhibit E. Statement of the Basis of the Owner's Ownership
- f. ☑ Exhibit F. Declaration Regarding Deposit
- g. ☑ Voucher Sample *(3,000 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)*
- h. ☑ Filing and Examination Fee ($4,382), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)*
☑ YES *(If "yes", answer items 21 and 22 below)* ☐ NO *(If "no", go to item 23)*

21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES?
☑ YES ☐ NO
IF YES, WHICH CLASSES? ☑ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☑ YES ☐ NO
IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS.
[1] FOUNDATION [ ] REGISTERED [1] CERTIFIED
(If additional explanation is necessary, please use the space indicated on the reverse.)

23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☐ YES ☑ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☐ YES ☑ NO
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER	SIGNATURE OF OWNER
Mark J. Cochran	
NAME *(Please print or type)*	NAME *(Please print or type)*
Mark J. Cochran	
CAPACITY OR TITLE	CAPACITY OR TITLE
Director, AAES	
DATE	DATE
9/28/07	

(See reverse for instructions and information collection burden statement)

ST-470 (02-06) designed by the Plant Variety Protection Office using Word 2003.

#200800001

GENERAL INSTRUCTIONS: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E, F; (3) for a tuber reproduced variety, verification that a viable *(in the sense that it will reproduce an entire plant)* tissue culture will be deposited and maintained in an approved public repository; and (4) payment by credit card or check drawn on a U.S. bank for $4,382 ($518 filing fee and $3,864 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practice)*. **NEW:** With the application for a seed reproduced variety **or by direct deposit soon after filing,** the applicant must provide at least 3,000 viable untreated seeds of the variety *per se*, and for a hybrid variety at least 3,000 untreated seeds of each line necessary to **reproduce** the variety. Partial applications will be held in the PVPO for not more than 90 days; then returned to the applicant as un-filed. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a payment by credit card or check payable to "Treasurer of the United States" in the amount of $768 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. *(See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)*

Plant Variety Protection Office
Telephone: (301) 504-5518 **FAX:** (301) 504-5291
General E-mail: PVPOmail@usda.gov
Homepage: http://www.ams.usda.gov/science/pvpo/PVPindex.htm

SPECIFIC INSTRUCTIONS:
To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and **provide evidence** that the permanent name of the application variety (even if it is a parental, inbred line) has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: U.S. Department of Agriculture, Agricultural Marketing Service, Livestock and Seed Programs, **Seed Regulatory and Testing Branch**, 801 Summit Crossing Place, Suite C, Gastonia, North Carolina 28054-2193 Telephone: (704) 810-8870. http://www.ams.usda.gov/lsg/seed.htm.

ITEM

19a. Give:
(1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified

19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:

(1) identify these varieties and state all differences objectively;
(2) attach replicated statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.

19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, *etc.*

19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.

20. If "Yes" is specified *(seed of this variety be sold by variety name only, as a class of certified seed)*, the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. *(See Regulations and Rules of Practice, Section 97.103).*

23. *See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.*

24. *See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.*

22. CONTINUED FROM FRONT *(Please provide a statement as to the limitation and sequence of generations that may be certified.)*

The seeds of Osage soybean are limited as to one generation of foundation seeds and certified seeds.

23. CONTINUED FROM FRONT *(Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)*

N/A

24. CONTINUED FROM FRONT *(Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)*

N/A

Exhibit A. Origin and Breeding History of 'Osage' Soybean

'Osage' soybean [*Glycine max* (L.) Merr.] was developed and released by the Arkansas Agricultural Experiment Station as a Maturity Group V conventional cultivar with high yield potential and moderately high protein content. Additionally, Osage is resistant to several important diseases in the mid-south, including southern stem canker, sudden death syndrome, soybean mosaic virus, and frogeye leaf spot.

Osage was originated from the cross between 'Hartz 5545' and 'KS4895'. The cross was performed in the field in 1993, and the F1 plants were space-planted (30 cm apart) in the field in 1994 at Fayetteville, AR. Osage was developed using a single pod bulk method and the early generation populations were grown in Fayetteville, AR. Seeds from the hybrid plants were bulked and planted in the field during 1995 to 1997, for the development of segregating populations from F2 to F4. The F2 to F4 populations each consisting of approximately 2000 plants were grown in 6.1m rows with 0.97m row spacing. One-hundred ten single plants were visually selected for yield and agronomic adaptation in the F_4 generation for 5% selection intensity. The $F_{4:5}$ lines were grown as 3-m single-row progeny rows in Keiser, AR, in 1998. Osage traces back to a single-row progeny row as a pure line that has been evaluated in 130 field tests in several southern states. Osage was tested as experimental line R98-1821 in a total of 48 Arkansas environments and 82 environments in ten other southern states for seed yield, protein content, and agronomic performance from 1999 to 2006. Osage was found to be uniform and stable over eight generations before it was released as a cultivar in 2007. No variants were observed during reproduction and multiplication based on the distinguishing characteristics of plant and seed including flower color, hypocotyls color, pubescence

color, pod wall color, plant type, plant growth habit, leaf shape, seed shape, seed coat color, hilum color, and seed coat luster. Osage is widely adapted to areas between 33 to 37 °N latitude.

Exhibit B. Statement of Distinctness of 'Osage' Soybean

Osage soybean is most similar to soybean cv. 5601T. Osage has purple flowers, as compared to white flowers of 5601T. Osage is, in average, 14cm shorter than 5601T (76.2cm vs. 91.4cm, respectively, for 8 location average in 2004 (matched-pairs t-test p=0.0017); and 74.0cm vs. 86.7cm, respectively, for 8 locations average in 2005 (matched-pairs t-test p=0.0049). Additionally, seeds of Osage have imperfect black hila, as compared to buff hila of 5601T.

U.S. DEPARTMENT OF AGRICULTURE
C
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT

OBJECTIVE DESCRIPTION OF VARIETY
Soybean (*Glycine max* (L.) Merr.)

NAME OF APPLICANT (S)	TEMPORARY OR EXPERIMENTAL DESIGNATION	VARIETY NAME
Arkansas Agricultural Experimental Station University of Arkansas	R98-1821	Osage

ADDRESS *(Street and No. or RD No., City, State, Zip Code, and Country)*
115 Plant Science Building
University of Arkansas
Fayetteville, AR 72701

FOR OFFICIAL USE ONLY

PVP NUMBER
#200800001

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

Place the appropriate number that describes the varietal character of this variety in the spaces below.

Place a zero in the first box (e.g., [0][9][9] or [0][9]) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used _____. Please answer all questions for your variety; lack of response may delay progress of your application.

A. MORPHOLOGY:

Seed Shape:

[1] 1 = Spherical (L/W, L/T, and T/W ratios ≤1.2)

2 = Spherical-Flattened (L/W ratios> 1.2; L/T ratios ≤ 1.2)

3 = Elongate (L/W ratios > 1.2; T/W ratios ≤ 1.2)

4 = Elongate-Flattened (L/T ratios ≥ 1.2; L/W ratios ≥ 1.2)

Seed Coat Color:

* [1] 1 = Yellow 2 = Green 3 = Brown 4 = Black 5 = Other (Please specify) _____

Seed Coat Luster:

[1] 1 = Dull 2 = Shiny

Seed Size:

* [1][2].[4] grams/100 seeds (rounded to the nearest decimal (00.0))

Hilum Color:

* [5] 1 = Buff 2 = Yellow 3 = Brown 4 = Gray 5 = Imperfect Black 6 = Black
7 = Other (Please specify) _____

A. MORPHOLOGY: (continued)

Cotyledon Color:

* [1] 1 = Yellow 2 = Green

Seed Protein Peroxidase Activity:

* [ ] 1 = Low 2 = High

Hypocotyl Color:

* [3] 1 = Green ('Evans' or 'Davis') 2 = Green with Bronze Band below cotyledons ('Woodworth' or 'Tracy') 3 = Light Purple below Cotyledons ('Beeson' or 'Pickett 71') 4 = Dark Purple extending to unifoliolate leaves ('Hodgson', 'Coker', or 'Hampton 266A')

Leaf Shape:

[3] 1 = Lanceolate 2 = Oval 3 = Ovate 4 = Other (Please specify) _____

Flower Color:

* [2] 1 = White 2 = Purple 3 = White with a Purple Throat

Pod Color:

* [1] 1 = Tan 2 = Brown 3 = Black

Pubescence Color:

* [1] 1 = Gray 2 = Brown (Tawny) 3 = Light Tawny

Plant Habit:

* [1] 1 = Determinate 2 = Semi-determinate 3 = Indeterminate 4 = Intermediate

Maturity Group:

* [8] 1 = 000 2 = 00 3 = 0 4 = I 5 = II
6 = III 7 = IV 8 = V 9 = VI 10 = VII
11 = VIII 12 = I 13 = X 14 = XI 15 = XII

Maturity Subgroup:

* [6] Please enter a value from 0-9

B. DISEASE REACTIONS: 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

NOTE: Failure to supply information for at least 5 of the following disease reactions will result in significant delay in the examination process. Items denoted by and asterisk are the disease reactions most useful in the examination process.

Bacterial

* [0] Bacterial Pustule (*Xanthomonas campestris* pv. *glycines* (Nakano) Dye)
* [0] Bacterial Blight (*Pseudomonas syringae* pv. *glycinea* (Coerper) Young, Dye, & Wilkie)
* [0] Wildfire Blight (*Pseudomonas syringae* pv. *tabaci* (Wolf & Foster) Young, Dye, & Wilkie)

Fungal

* [0] Brown Spot (*Septoria glycines* Hemmi)
* [3] Frogeye Leaf Spot (*Cercospora sojina* Hara)

[ ] race 1 [ ] race 3 [ ] race 5 [ ] race 7
[ ] race 2 [ ] race 4 [ ] race 6 [ ] Important: Any other races tested (Please specify)_____

B. DISEASE REACTIONS: (continued)

[0] Target Spot (*Corynespora cassiicola* (Berk. & Curt.) Wei)
[0] Downy Mildew (*Peronspora trifoliorum* var. *manchurica* (Naum.) Syd. Ex Gäum)
[0] Powdery Mildew (*Microsphaera diffusa* Cke. & Pk.)
[0] Brown Stem Rot (*Phialophora gregata* (Allington & Chamberlain) W. Gams.)
* [2] Stem Canker (*Diaporthe phaseolorum* (Cke. & Ell.) Sacc. var. caulivora Athow & Caldwell)
* [0] Pod and Stem Blight (*Diaporthe phaseolorum* (Cke. & Ell.) (Sacc. var. *sojae* (Lehman) Wehm.)
[0] Purple Seed Stain (*Cercospora kikuchii* (T. Matsu. & Tomoyasu) Gardener)
[0] Rhizoctonia Root Rot (*Rhizoctonia solani* Kühn)
[0] Asian Soybean Rust (*Phakospora pachyrhizi* Sydw. (a.k.a. *Phakospora pachyrhizia* Sydw.))
[ ] Other rust (Please specify) _____

Specify the gene(s) coding for reaction to Phytophthora Root Rot.

[ ] *Rps1* (Williams) [ ] *Rps1-c* (Arksoy) [ ] *Rps1-k* (Kingwa) [ ] *Rps3-b* (PI 172.901) [ ] *Rps5* (PI 91.160) [ ] *Rps?* (Nezumisaya, OX939, OX940)
[ ] *Rps1-a* (Mukden) [ ] *Rps1-d* (PI 103.091) [ ] *Rps2* (CNS) [ ] *Rps3-c* (PI 340.046) [ ] *Rps6* (Altona)
[ ] *Rps1-b* (Sanga) [ ] *Rps1-e* (PI 172.907) [ ] *Rps3-a* (PI 171.442) [ ] *Rps4* (PI 86.050) [ ] *Rps7* (Harosoy)

*Phytophthora Root Rot (*Phytophthora sojae* (Kaufmann & Gerdemann))

[0] race 1	[0] race 9	[0] race 17	[0] race 25	[0] race 32	[0] race 39
[0] race 2	[0] race 10	[0] race 18	[0] race 26	[0] race 33	[0] race 40
[0] race 3	[0] race 11	[0] race 19	[0] race 27	[0] race 34	[0] race 41
[0] race 4	[0] race 12	[0] race 20	[0] race 28	[0] race 35	[0] race 42
[0] race 5	[0] race 13	[0] race 21	[0] race 29	[0] race 36	[0] race 43
[0] race 6	[0] race 14	[0] race 22	[0] race 30	[0] race 37	[0] race 44
[0] race 7	[0] race 15	[0] race 23	[0] race 31	[0] race 38	[0] race 45
[0] race 8	[0] race 16	[0] race 24	[0] Important: Any other races tested (Please specify) _____		

[0] Bud Blight (Tobacco Ringspot Virus)
[0] Yellow Mosaic (Bean Yellow Mosaic Virus)
* [0] Cowpea Mosaic (Cowpea Chlorotic Virus)
[0] Pod Mottle (Bean Pod Mottle Virus)
* [2] Seed Mottle (Soybean Mosaic Virus)

Nematode

*Soybean Cyst Nematode (*Heterodera glycines* Ichinohe)

[0] race 1	[0] race 4	[0] race 9
[1] race 2	[0] race 5	[1] race 14
[1] race 3	[0] race 6	[0] Important: Any other races tested (Please specify) _____

B. DISEASE REACTIONS: (continued)

[0] Lance Nematode (*Hoplolaimus columbus* Sher)
[1] Southern Root Knot Nematode (*Meliodogyne incognita* (Kofoid & White) Chitwood)
[0] Northern Root Knot Nematode (*Meliodogyne hapla* Chitwood)
[1] Peanut Root Knot Nematode (*Meliodogyne arenaria* (Neal) Chitwood)
[0] Reniform Nematode (*Rotylenchus reniformus* Linwood & Olivera)
[0] Javanese Nematode (*Meliodogyne javanica* (Treub) Chitwood)
[0] Important: Other Nematodes tested (Please specify) _____

C. PHYSIOLOGICAL RESPONSES: 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

[0] Iron Chlorosis on Calcareous Soil
[0] Phosphorus
[0] Boron
[0] Aluminum
[0] Salt
[0] Drought

[ ] Important: Other (Please specify) _____

D. INSECT REACTIONS: 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

[0] Mexican Bean Beetle (*Epilachna varivestis* Mulsant)
[0] Soybean Aphid (*Aphis glycines* Matsamura)
[0] Potato Leaf Hopper (*Empoasca fabae* (Harris))
[0] Important: Other (Please specify) _____

E. HERBICIDE REACTIONS: 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

[0] Metribuzin
[0] Bentazone
[0] Sulfonylurea
* [1] Glyphosate
[0] Glufosinate
[0] Pendimethalin
[0] Important: Other (Please specify) _____

F. TRANSGENIC COMPOSITION:

Has the development of the subject variety included the insertion of genetic material from an organism other than a soybean, or, the removal of genetic material from the application variety?

If yes, please complete the following information requests*. Use additional pages if necessary. ☐ Yes ☒ No

1. Please state the vector's name:

2. Please state the vector components:

3. Please describe the genetic material successfully transferred into the subject variety:

4. Please describe the insertion protocol:

* A literature citation(s) explaining the four information requests above may be an acceptable alternative to completion of the "Transgenic Composition" portion of this form.

G. BIOCHEMICAL MARKERS:

Please describe any additional genetic and/or biochemical information which you believe will be helpful in further describing the subject variety here (e.g., Single Nucleotide Polymorphisms (SNPs), Simple Sequence Repeats (SSRs), Restriction Fragment Length Polymorphisms (RFLPs), Isozyme characterization, etc.). Use additional pages if necessary.

H. STATISTICAL DATA FOR APPLICATION AND CITED MOST SIMILAR VARIETIES:

Please provide paired comparison data and appropriate statistical test (e.g. LSD. Std. error, ANOVA, Mann-Whitney *U*-test or Kruskal-Wallis Test, etc.) value (95 or > probability level).

Variety	No. of days Maturity	Plant height (cm)	% Linoleic acid	% Oleic acid	% Linolenic acid	% Other fatty acids (specify)	% Total oil	% Protein (Plant dried down to 13 %)
Application Variety Year/Location 1 2004 Regional QT tests (8 loc mean)	44 a	76.2 b					18.1 a	39.9 a
Year/Location 2 2005 Regional QT tests (8 loc mean)	38 a	74.0 b					17.9 b	38.2 a
Cited Most Similar Variety Year/Location 1 2004 Regional QT tests (8 loc mean)	43 a p=0.1360	91.4 a p=0.0017					18.4 a p= 0.8974	39.1 b p=0.0372
Year/Location 2 2005 Regional QT tests (8 loc mean)	41 a p=0.8018	86.7 a p=0.0049					18.4 a p= 0.0143	37.1 b p=0.0037

Note: Statistical test used to test significance of mean differences is a matched-pairs t-test

I. COMMENTS:

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued *(7 U.S.C. 2421)*. The information is held confidential until the certificate is issued *(7 U.S.C. 2426)*.

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
Arkansas Agricultural Experimental Station University of Arkansas	R98-1821	Osage
4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*	**5. TELEPHONE** *(Include area code)*	**6. FAX** *(Include area code)*
115 Plant Science Building Department of Crop, Soil, and Environmental Sciences University of Arkansas Fayetteville, AR 72701	(479) 575-7564	(479) 545-7465
	7. PVPO NUMBER #200800001	

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. **If no, please explain.** ☑ **YES** ☐ **NO**

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? **If no, give name of country.** ☑ **YES** ☐ **NO**

10. Is the applicant the original owner? ☑ **YES** ☐ **NO** **If no, please answer one of the following:**

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?
☐ **YES** ☐ **NO** **If no, give name of country**

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?
☑ **YES** ☐ **NO** **If no, give name of country**

11. Additional explanation on ownership *(Trace ownership from original breeder to current owner. Use the reverse for extra space if needed)*:

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT F
DECLARATION REGARDING DEPOSIT

NAME OF OWNER (S)	ADDRESS *(Street and No. or RD No., City, State, and Zip Code and Country)*	TEMPORARY OR EXPERIMENTAL DESIGNATION
Arkansas Agricultural Experimental Station University of Arkansas	115 PTSC Building - University of Arkansas Fayetteville, AR 72701	R98-1821
		VARIETY NAME: Osage
NAME OF OWNER REPRESENTATIVE (S)	**ADDRESS *(Street and No. or RD No., City, State, and Zip Code and Country)***	**FOR OFFICIAL USE ONLY**
Pengyin Chen	115 PTSC Building - University of Arkansas Fayetteville, AR 72701	PVPO NUMBER #200800001

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.

Signature _____ Date _____